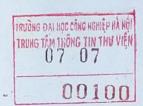


Business Driven Technology

Haag Baltzan Phillips

Business Driven Technology



Business Driven Technology

Stephen Haag

Daniels College of Business University of Denver

Paige Baltzan

Daniels College of Business University of Denver

Amy Phillips

Daniels College of Business University of Denver



Boston Burr Ridge, IL Dubuque, IA Madison, WI New York San Francisco St. Louis Bangkok Bogotá Caracas Kuala Lumpur Lisbon London Madrid Mexico City Milan Montreal New Delhi Santiago Seoul Singapore Sydney Taipei Toronto



BUSINESS DRIVEN TECHNOLOGY

Published by McGraw-Hill/Irwin, a business unit of The McGraw-Hill Companies, Inc., 1221 Avenue of the Americas, New York, NY, 10020. Copyright © 2006 by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of The McGraw-Hill Companies, Inc., including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

34567890VNH/VNH098765

ISBN: 0-07-298301-9

Editorial director: Brent Gordon Publisher: Stewart Mattson

Senior sponsoring editor: Paul Ducham Developmental editor: Jennifer Wisnowski Senior marketing manager: Douglas Reiner

Media producer: Greg Bates

Lead project manager: Mary Conzachi Production supervisor: Gina Hangos Senior designer: Mary E. Kazak

Senior photo research coordinator: Jeremy Cheshareck

Photo researcher: Jennifer Blankenship Senior supplement producer: Rose M. Range Senior digital content specialist: Brian Nacik

Cover design: Lodge Design

Cover image: @ Haslin/Corbis Sygma Interior design: Amanda Kavanagh

Typeface: 10/12 Utopia

Compositor: ElectraGraphics, Inc. Printer: Von Hoffmann Corporation

Library of Congress Cataloging-in-Publication Data

Haag, Stephen.

Business driven technology / Stephen Haag, Paige Baltzan, Amy Phillips.—1st ed.

Includes bibliographical references and index.

ISBN 0-07-298301-9 (alk. paper)

1. Information technology—Management. 2. Management information systems. 3. Information resources management. 4. Industrial management—Technological innovations.

I. Baltzan, Paige. II. Phillips, Amy. III. Title.

HD30.2.H32 2006 658.4'038-dc22

2004057923

BRIEF TABLE OF CONTENTS

UNITS

1. Achieving Business Success through Information Technology

- Chapter 1: Business Driven Technology Overview
- Chapter 2: Identifying Competitive Advantages
- Chapter 3: Strategic Initiatives for Implementing Competitive Advantages
- Chapter 4: Measuring the Success of Strategic Initiatives
- Chapter 5: Organizational Structures That Support Strategic Initiatives

2. Managing Information for Business Initiatives

- Chapter 6: Valuing Organizational Information
- Chapter 7: Storing Organizational Information—Databases
- Chapter 8: Viewing and Protecting Organizational Information

3. Enhancing Business Decisions

- Chapter 9: Enabling the Organization—Decision Making
- Chapter 10: Extending the Organization—Supply Chain Management
- Chapter 11: Building a Customer-centric Organization—Customer Relationship Management
- Chapter 12: Integrating the Organization from End to End—Enterprise Resource Planning

4. Creating Collaborative Partnerships in Business

- Chapter 13: Creating Collaborative Partnerships through E-Business
- Chapter 14: Enhancing Collaborative Partnerships
- Chapter 15: Outsourcing Collaborative Partnerships
- Chapter 16: Integrating Collaborative Partnerships

5. Transforming Organizations

- Chapter 17: Fostering an Innovative Organization
- Chapter 18: Creating a Wireless Organization
- Chapter 19: Building Software to Support an Agile Organization
- Chapter 20: Developing a 21st Century Organization

BUSINESS PLUG-INS

- B1 Information Security B6 Strate
- B2 Ethics
- B3 Supply Chain Management
- B4 Customer Relationship Management
- B5 Enterprise Resource Planning

- **B6** Strategic Outsourcing
- B7 E-Business Models
- B8 Emerging Trends and Technologies
- B9 Systems Development
- **B10** Project Management

TECHNOLOGY PLUG-INS

- T1 Hardware and Software
- T2 Networks and Telecommunications
- T3 Decision-Analysis Tools in Excel
- T4 Designing Database Applications
- T5 Touring Access
- T6 Object-Oriented Technologies
- T7 Valuing Technology

TABLE OF CONTENTS

Preface xvii
About the Authors xxxiv

UNIT 1

Achieving Business Success through Information Technology 2

How Levi's Got Its Jeans into Wal-Mart 3
Introduction 6

CHAPTER 1: BUSINESS DRIVEN TECHNOLOGY OVERVIEW 7

Unit 1: Achieving Business Success through Information Technology 7

Unit 2: Managing Information for Business Initiatives 8

Unit 3: Enhancing Business Decisions 9

Unit 4: Creating Collaborative Partnerships in Business 10

Unit 5: Transforming Organizations 12 Chapter 1 Case: *Technology in Business* 13

Plug-In Pointers: T1, T2 14

CHAPTER 2: IDENTIFYING COMPETITIVE ADVANTAGES 15

The Five Forces Model—Evaluating Business Segments 15

Buyer Power 16 Supplier Power 16

Threat of Substitute Products or Services 17

Threat of New Entrants 17

Rivalry among Existing Competitors 17

The Three Generic Strategies—Creating a Business Focus 18

Value Chains—Targeting Business

Processes 19

Chapter 2 Case: Say "Charge It" with Your Cell Phone 21

CHAPTER 3: STRATEGIC INITIATIVES FOR IMPLEMENTING COMPETITIVE ADVANTAGES 22

Supply Chain Management 22
Customer Relationship Management 24
Enterprise Resource Planning 26

Chapter 3 Case: Consolidating Touchpoints

for Saab 28

CHAPTER 4: MEASURING THE SUCCESS OF STRATEGIC INITIATIVES 29

Benchmarking—Baselining Metrics 29
The Interrelationships of Efficiency and Effectiveness
IT Metrics 30

Determining IT Effectiveness 32

Web Traffic Analysis 32

Chapter 4 Case: How Do You Value Friendster? 35

CHAPTER 5: ORGANIZATIONAL STRUCTURES THAT SUPPORT STRATEGIC INITIATIVES 36

IT Roles and Responsibilities 36
The Gap between Business Personnel and
IT Personnel 37
Fundamental Support Structures—Ethics and
Security 38

Ethics 38 Security 39

Chapter 5 Case: CCRM—Customer's Customer

Relationship Management 41 Plug-In Pointers: B1, B2 42

Unit Summary 43

Unit Closing Case One: Motivating and Rewarding an Organization's Most Valuable Asset—Its Employees 44

Unit Closing Case Two: Delta Airlines Plays

Catch-Up 45

Making Business Decisions 47
Making Collaborative Decisions 48

UNIT 2

Managing Information for Business Initiatives 50

Searching for Revenue—Google 51 Introduction 53

CHAPTER 6: VALUING ORGANIZATIONAL INFORMATION 54

The Value of Transactional and Analytical Information 55

The Value of Timely Information 56
The Value of Quality Information 57

Understanding the Costs of Low-Quality
Information 58
Understanding the Benefits of High-Quality
Information 59

Chapter 6 Case: Fishing for Quality 59

CHAPTER 7: STORING ORGANIZATIONAL INFORMATION—DATABASES 61

Relational Database Fundamentals 61

Entities, Entity Classes, and Attributes 62 Keys and Relationships 62

Relational Database Advantages 62

Increased Flexibility 62

Increased Scalability and Performance 64

Reduced Information Redundancy 64

Increased Information Integrity (Quality) 64

Increased Information Security 65

Database Management Systems 66
Data Definition Component 67

Data Manipulation Component 67

Application Generation and Data Administration

Components 68

Integrating Information among Multiple Databases 70 Chapter 7 Case: Hotcourses Increases Revenues by 60 Percent 72

Plug-In Pointers: T4, T5 73

CHAPTER 8: VIEWING AND PROTECTING ORGANIZATIONAL INFORMATION 74

Data Warehouse Fundamentals 74

Multidimensional Analysis and Data Mining 75 Information Cleansing or Scrubbing 76

Keeping Business Operations Running Smoothly 77

Backup and Recovery Strategy 77

Disaster Recovery Plan 78

Building Adaptable Systems 79

Flexibility 79

Scalability 79

Reliability 79

Availability 79

Performance 80

Chapter 8 Case: Connecting Austria 81

Plug-In Pointer: T3 81

Unit Summary 82

Unit Closing Case One: Harrah's-Gambling Big on

Technology 82

Unit Closing Case Two: Evaluating Swiss Army's

Success 85

Making Business Decisions 86

Making Collaborative Decisions 87

UNIT 3

Enhancing Business Decisions 90

Revving Up Sales at Harley-Davidson 91
Introduction 94

CHAPTER 9: ENABLING THE ORGANIZATION—DECISION MAKING 95

Decision Support Systems 96
Executive Information Systems

Artificial Intelligence (AI) 99

Expert Systems 100

Neural Networks 100 Intelligent Agents 101

Data Mining 101

Cluster Analysis 102

Association Detection 102

Statistical Analysis 103

Chapter 9 Case: Finding the Best Buy 105

CHAPTER 10: EXTENDING THE ORGANIZATION— SUPPLY CHAIN MANAGEMENT 106

Supply Chain Management's Explosive Growth 107
Using Supply Chain Management to Enhance Decision

98

Making 108

Supply Chain Management Success Factors 109

Chapter 10 Case: BudNet 111

Plug-In Pointer: B3 112

CHAPTER 11: BUILDING A CUSTOMER-CENTRIC ORGANIZATION—CUSTOMER RELATIONSHIP MANAGEMENT 113

Customer Relationship Management's Explosive

Growth 114

Using Analytical CRM to Enhance Decisions 115
Customer Relationship Management Success

Factors 116

Chapter 11 Case: Gearing Up at REI 118

Plug-In Pointer: B4 118

CHAPTER 12: INTEGRATING THE ORGANIZATION FROM END TO END—ENTERPRISE RESOURCE PLANNING 119

Enterprise Resource Planning's Explosive Growth 121

The Connected Corporation 121

Integrating SCM, CRM, and ERP 123

Chapter 12 Case: Hilton Purchases New Suite 124

Plug-In Pointer: B5 125

Unit Summary 126

Unit Closing Case One: Building LEGO's IT Systems

One Block at a Time 126

Unit Closing Case Two: eBay's Cosmos Business

Intelligence System 128

Making Business Decisions 129

Making Collaborative Decisions 130

UNIT 4

Creating Collaborative Partnerships in Business 132

Amazon.com—Just a Click Away 133 Introduction 135

PARTIMESHIPS THROUGH E-BUSINESS 136 Evolution of E-Business 136 Evolution of E-Business 136 Evolution of E-Business 137 The Importance of the E-Business Model 138 Business-to-Consumer (B2C) overview 139 Business-to-Consumer (B2C) overview 139 E-Business 140 The Difference between B2C and B2B E-Business 140 Security Concerns 140 Taxation 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: **Pelven's Dream Team 143 **Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTINERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: **The Skinny on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Bystems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: **Destroy on Knowledge Management Systems 152 Colla
E-Business Economy 137 The Importance of the E-Business Model 138 Business-to-Business (B2B) Overview 139 Business-to-Consumer (B2C) Overview 140 The Difference between B2C and B2B E-Business 140 Challenges of the E-Business Models 140 Security Concerns 140 Cansumer Protection 141 Consumer Protection 141 Consumer Protection 141 Consumer Protection 141 Chapter 13 Case: **Z-Fleven's Dream Team 143 **Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Morkflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 150 Peer-to-Peer Systems 150 Peer-to-Peer Systems 150 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 157 Outsourcing 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Location Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: **Outsourcing Can Change Everything 161 **Plug-In Pointer: B6 162 PartnersRHPS 163 Providing Web-based User Access 164 Dinit Closing Case Two: **Outsourcing at DuPont 175 Making Collaboration 177 Making Collaborative Decisions 177 Making Collaborative Decisions 178 UNIT 5 Transforming Organizations 180 Masters of Innovation, Technology, and Strategic Vision 181 Introduction 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: **Watching the Weather 193** CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Strategic Outsourcing Partnerships Software Development Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequent
The Importance of the E-Business Model Business-to-Consumer (B2C) Overview 139 Business-to-Consumer (B2C) Overview 140 The Difference between B2C and B2B E-Business 140 Challenges of the E-Business Models 140 Security Concerns 140 Taxation 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 case: ***-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 157 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHPS 157 Insourcing 157 Outsourcing 158 Increase Technical Abilities 158 Increase Technical Abilities 158 Market Againty 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Plug-In Pointer: B6 162 Providing Web-based User Access 164 Making Business Decisions 177 Making Collaboration 178 Making Collaboration 178 UNIT 5 Transforming Organizations 180 Masters of Innovation, Technology, and Strategic Vision 181 Introduction 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 Chapter 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 19: BuilDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 197 Agile Methodology 198 Rapid Application Development Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Business-to-Cusiness (B2B) Overview 149 The Difference between B2C and B2B E-Business 140 Challenges of the E-Business Models 140 Security Concerns 140 Taxation 141 Consumer Protection 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Chapter 14 Case: The Skinny on Knowledge Management af Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Making Collaborative Decisions 178 UNIT 5 Transforming Organizations 180 Masters of Innovation, Technology, and Strategic Vision 181 Introduction 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Mobile and Wireless Technologies 191 Wireless Industry Outlook 192 The Wireless Industry Outlook 192 The Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 19: Case Transforming the Entertainment Industry—Netflix 204
Business-to-Consumer (B2C) Overview 140 The Difference between B2C and B2B E-Business 140 Challenges of the E-Business Models 140 Security Concerns 140 Taxation 141 Consumer Protection 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Creer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 Chapter 18 Case Steem 1020 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
The Difference between B2C and B2B E-Business 140 Challenges of the E-Business Models 140 Security Concerns 140 Taxation 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CNATTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Transforming Organizations 180 Masters of Innovation, Technology, and Strategic Vision 181 Introduction 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wirele
Challenges of the E-Business Models 140 Security Concerns 140 Taxation 141 Consumer Protection 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: 87 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management Systems 152 Collaboration Trends 154 Chapter 15 Case: The Skinny on Knowledge Management A Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Transforming Organizations 180 Masters of Innovation, Technology, and Strategic Vision 181 Introduction 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17: Case: Maintaining TiVo's Popularity 188 ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 Chapter 18: Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Challenges of the E-Business Models 140 Security Concerns 140 Taxation 141 Consumer Protection 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: Telever's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Transforming Organizations 180 Masters of Innovation, Technology, and Strategic Vision 181 Introduction 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 ORGANIZATION 190 Business Drivers for Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless
Security Concerns 140 Taxation 141 Consumer Protection 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 157 Outsourcing 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Masters of Innovation, Technology, and Strategic Vision 181 Introduction 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 18: CREATING A WIRELESS ORGANIZATION 195 ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Industry Out
Taxation 141 Consumer Protection 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 Cheed for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Vision 184 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technologies 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 CHAPTER 19: CEATING A WIRELESS ORGANIZATION 190 CHAPTER 19: CREATING A WIRELESS ORGANIZATION 190 CHAPTER 19: CREATING A WIRELESS ORGANIZATION 190 CHAPTER 19: CREATING AWIRELESS ORGANIZATION 190 CHAPTER 19: CREATING A WIRELESS ORGANIZATION 195 Focusing on the Unexpected 186 Chapter 19 Cas
Consumer Protection 141 The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 COllaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 157 Outsourcing 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 19: ToSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If it Doesn't Work, Kill it 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
The Evolution of the E-Marketplace 142 The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 CCIlaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 17: FOSTERING AN INNOVATIVE ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 Floating on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 19 Case: The Wireless Technologies 191 Business Drivers for Wireless Technologies 191 Busines
The Next Generation: M-Commerce 142 Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Chapter 13 Case: 7-Eleven's Dream Team 143 Plug-In Pointer: B7 144 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 ORGANIZATION 185 Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technologies 191 Business Drivers for Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill t 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Focusing on the Unexpected 186 Chapter 17 Case: Maintaining TiVo's Popularity 188 CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 Cheef for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 Chapter 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164
CHAPTER 14: ENHANCING COLLABORATIVE PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Collaborative Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Chapter 12 Case: Maintaining TiVo's Popularity 188 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management Afrito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Industry Outlook 192 The Wireless Industry Outlook 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
PARTNERSHIPS 145 The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 CHAPTER 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18: CREATING A WIRELESS ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wirel
The Need for Collaboration 146 Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 ORGANIZATION 190 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Content Management Systems 147 Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 Providing Web-based User Access 164 Mobile and Wireless Technologies 191 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Workflow Management Systems 148 Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Outsourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 Providing Web-based User Access 164 Business Drivers for Wireless Technology 191 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Groupware Systems 150 Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 Providing Web-based User Access 164 Wireless Industry Outlook 192 The Wireless Culture 192 Chapter 18 Case: Watching the Weather 193 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Reep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Peer-to-Peer Systems 151 Knowledge Management Systems 152 Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Collaboration Trends 154 Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Chapter 14 Case: The Skinny on Knowledge Management at Frito-Lay 155 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Developing Notwork Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 CHAPTER 19: BUILDING SOFTWARE TO SUPPORT AN AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
AGILE ORGANIZATION 195 CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 AGILE ORGANIZATION 195 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
CHAPTER 15: OUTSOURCING COLLABORATIVE PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Developing Software—The Systems Development Life Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Cycle (SDLC) 196 Software Development Methodologies 198 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Cycle (SDLC) 196 Software Development Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
PARTNERSHIPS 157 Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Insourcing 157 Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Waterfall Methodology 198 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Outsourcing 158 Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Rapid Application Development Methodology (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Financial Savings 158 Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 (RAD) 199 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Increase Technical Abilities 158 Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Extreme Programming Methodology 199 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Market Agility 159 Developing Strategic Outsourcing Partnerships 160 Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Agile Methodology 200 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Developing Strategic Outsourcing Partnerships Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Developing Successful Software 201 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Sourcing's New Surge—Offshoring 160 Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Slash the Budget 201 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Chapter 15 Case: Outsourcing Can Change Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 If It Doesn't Work, Kill It 201 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Everything 161 Plug-In Pointer: B6 162 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Keep Requirements to a Minimum 201 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
Plug-In Pointer: B6 162 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Test and Deliver Frequently 201 Assign Non-IT Executives to Software Projects 201 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164 Assign Non-IT Executives to Software Projects 201 Project Managing the Systems Development Effort 202 Chapter 19 Case: Transforming the Entertainment Industry—Netflix 204
CHAPTER 16: INTEGRATING COLLABORATIVE PARTNERSHIPS 163 Providing Web-based User Access 164
PARTNERSHIPS 163 Chapter 19 Case: Transforming the Entertainment Providing Web-based User Access 164 Industry—Netflix 204
Providing Web-based User Access 164 Industry—Netflix 204
Trottering From Bullou Good Modello 101
0.5 0 1.5 0.5 1.5 1.00
Online Service Provider 166 CHAPTER 20: DEVELOPING A 21ST CENTURY
Application Service Provider 167 ORGANIZATION 206
Portals: A Window into the Future 167 The Future of Integration Is Open 170 21st Century Organization Trends 206
Increased Ferre or IT Left at the control of the co
Chapter 16 Case: JetBlue: Green with Envy 171 Plug-In Pointer: B8 172 Increased Focus on 11 Infrastructure 206 Increased Focus on Security 207

Increased Focus on e-Business 209
Increased Focus on Integration 209

Chapter 20 Case: Creating a Clearer Picture for Public Broadcasting Service (PBS) 211

Plug-In Pointer: T7 212

Unit Summary 213

Unit Closing Case One: Watching Where You Step-

Prada 213

Unit Closing Case Two: Fear the Penguin 215

Making Business Decisions 217
Making Collaborative Decisions 218



PLUG-IN B1

INFORMATION SECURITY 220

Introduction 220
The First Line of Defense—People 220
The Second Line of Defense—Technology 223
Authentication and Authorization 224

Something the User Knows such as a User ID and Password 224 Something the User Has such as a Smart Card or

Token 224
Something That Is Part of the User such as a

Something That Is Part of the User such as a Fingerprint or Voice Signature 224

Prevention and Resistance 225

Content Filtering 225 Encryption 225 Firewalls 225

Detection and Response 226

Plug-In Summary 228

Closing Case One: Thinking Like the Enemy 228
Closing Case Two: Homeland Security 229

PLUG-IN B2

ETHICS 234

Introduction 234
Ethics 235
Information Has No Ethics 236
Developing Information Management Policies 238
Ethical Computer Use Policy 238
Information Privacy Policy 239
Acceptable Use Policy 240
E-Mail Privacy Policy 240
Internet Use Policy 241
Anti-Spam Policy 242

Ethics in the Workplace 242
Monitoring Technologies 243
Employee Monitoring Policies 244

Plug-In Summary 245

Closing Case One: Sarbanes-Oxley: Where Information Technology, Finance, and Ethics

Meet 246

Closing Case Two: Spying on Employees 247

Making Business Decisions 248

PLUG-IN B3

SUPPLY CHAIN MANAGEMENT 250

Introduction 250
Supply Chain Strategies 250
Supply Chain Drivers 251
Facilities Driver 252

Location 252 Capacity 253 Operational Design 253

Inventory Driver 253

Cycle Inventory 253
Safety Inventory 254

Transportation Driver 254

Method of Transportation 254
Transportation Route 254

Information Driver 255

Information Sharing 255

Push vs. Pull Information Strategy 255

Applying a Supply Chain Design 256 Future Trends 257

Plug-In Summary 258

Closing Case One: Listerine's Journey 258
Closing Case Two: Crafting an SCM Strategy for
Michaels 259

Making Business Decisions 260

PLUG-IN B4

CUSTOMER RELATIONSHIP MANAGEMENT 262

Introduction 262
The Evolution of CRM 263
Operational CRM 264
Marketing and Operational CRM 265
List Generator 265

Campaign Management 265
Cross-Selling and Up-Selling 265

Sales Management 266
Contact Management 267

Opportunity Management 267

Customer Service and Operational CRM 267 Contact Center 268

Web-Based Self-Service 269

Call Scripting 269 Analytical CRM 270

Current Trends: SRM, PRM, and ERM 271

Supplier Relationship Management 271 Partner Relationship Management 271 Employee Relationship Management 272

Future Trends 272

Plug-In Summary 273

Closing Case One: Fighting Cancer

with Information 273

Closing Case Two: Calling All Canadians 275

Making Business Decisions 276

PLUG-IN B5

ENTERPRISE RESOURCE PLANNING

Introduction 278

Core and Extended ERP Components 278 Core ERP Components 279

Accounting and Finance Components 279 Production and Materials Management Components 280 Human Resource Components 281

Extended ERP Components 281

Business Intelligence Components 281 Customer Relationship Management Components 281 Supply Chain Management Components 281 E-Business Components 282

ERP Benefits and Risks (Cost) 282 The Future of ERP 283

Internet 285 Interface 285 Wireless Technology 285

Plug-In Summary 286

Closing Case One: PepsiAmericas' Enterprise 286 Closing Case Two: Demanding Chocolate 287

Making Business Decisions 288

PLUG-IN B6

STRATEGIC OUTSOURCING 290

Introduction 290 The Outsourcing Phenomenon Outsourcing Benefits 292 Outsourcing Options 292 Offshore Outsourcing 293 The Leaders 294

The Up-and-Comers 295 The Rookies 297

The Challenges of Outsourcing 299 Future Trends 301 Multisourcing 301 Plug-In Summary 302

Closing Case One: Mobil Travel Guide 302 Closing Case Two: Outsourcing Brew 303 Making Business Decisions 304

PLUG-IN B7

E-BUSINESS MODELS 306

Introduction 306 E-Business: Commerce on the Internet 306 Direct Marketing, Selling, and Services 307 Financial and Information Services 308 Maintenance, Repair, and Operations (MRO) 308 Intermediaries 309 E-Business Models 310 Business-to-Business (B2B) Models 311 Buyer Model (Few Buyers, Many Sellers) Marketplace Model (Many Buyers, Many Sellers) 312 Longer Term Relationship Model (Few Buyers, Few Sellers) 312 Seller Model (Many Buyers, Few Sellers) 313 Business-to-Consumer (B2C) Business Models 313 E-Shop 313 E-Mall 313 Consumer-to-Consumer (C2C) Business Model 314 E-Business Challenges 314 Current Trends: E-Marketplaces 315 E-Marketplace Benefits and Revenue Models 316

The "Content" Perspective of E-Marketplaces 316 Future Trends: E-Channels, E-Portals, and E-Government 317

Plug-In Summary 320

Closing Case One: E-Business@eBay 320 Closing Case Two: Mail with PostalOne 320 Making Business Decisions 323

PLUG-IN B8

EMERGING TRENDS AND TECHNOLOGIES 324

Introduction 324 Reasons to Watch Trends 324 Trends Shaping Our Future 325 The World's Population Will Double in the Next 40 Years 325 Population in Developing Countries Is Living Longer 326 The Growth in Information Industries Is Creating a Knowledge-Dependent Global Society 327

The Global Economy Is Becoming More Integrated 32
The Economy and Society Are Dominated
by Technology 328
Pace of Technological Innovation Is Increasing 328
Time Is Becoming One of the World's Most Precious
Commodities 329
Technologies Shaping Our Future 329
Digital Ink 329
Digital Paper 330
Radio Frequency Identification (RFID) 332
Teleliving 333
Alternative Energy Sources 333
Autonomic Computing 334
Plug-In Summary 336
Closing Case One: Autonomic Railways 336
Closing Case Two: Wireless Progression 337
Making Business Decisions 338

PLUG-IN B9

SYSTEMS DEVELOPMENT 340

Introduction 340
Systems Development Life Cycle 341
Phase 1: Planning 341
Identify and Select the System for Development 341
Assess Project Feasibility 342
Develop the Project Plan 342
Phase 2: Analysis 343

Gather Business Requirements 343
Create Process Diagrams 344
Perform a Buy vs. Build Analysis 344

Phase 3: Design 345

Design the IT Infrastructure 345

Design System Models 345

Phase 4: Development 346

Develop the IT Infrastructure 346

Develop the Database and Programs 347

Phase 5: Testing 347
Write the Test Conditions 348
Perform the System Testing 349

Perform the System Testing 349

Phase 6: Implementation 349

Write Detailed User Documentation 349

Determine Implementation Method 349
Provide Training for the System Users 350
Phase 7: Maintenance 350

Build a Help Desk to Support the System Users 350
Perform System Maintenance 350
Provide an Environment to Support System
Changes 350

Software Problems Are Business Problems 351
Unclear or Missing Business Requirements 351
Skipping SDLC Phases 352
Failure to Manage Project Scope 352

Failure to Manage Project Plan 352
Changing Technology 352
Plug-In Summary 353
Closing Case One: Disaster at Denver International
Airport 354
Closing Case Two: Reducing Ambiguity in Business
Requirements 355
Making Business Decisions 356

PLUG-IN B10

PROJECT MANAGEMENT 358

Introduction 358 Project Management Fundamentals 358 Choosing Strategic Projects 359 Setting the Project Scope 360 Managing Resources and Maintaining the Project Plan 361 Change Management and Risk Management 362 Change Management 363 363 Preparing for Change Risk Management 364 Mitigating Risk 365 Successful Project Management Strategies 366 Plug-In Summary 367 Closing Case One: Staying on Track—Toronto Transit 367 Closing Case Two: Automating Autodesk 368 Making Business Decisions 369



PLUG-IN T1

HARDWARE AND SOFTWARE 370

Introduction 370
The Basics of Hardware and Software 370
Computer Categories 371

Personal Digital Assistants (PDAs) 371
Notebook Computers 371
Tablet Computers 372
Desktop Computers 372
Minicomputers, Mainframe Computers, and Supercomputers 372

Software 373
Application Software 373
Personal Productivity Soft

Personal Productivity Software 373
Vertical and Horizontal Market Software 373
System Software 373

Operating System Software 373 Utility Software 374 Hardware 374
Common Input Devices 375
Common Output Devices 375

Monitors 375 Printers 376

Characteristics of CPUs and RAM 376 Common Storage Devices 377 Telecommunications Devices 378

Connecting Devices 380

Buses, Expansion Slots, and Expansion Cards 380
Ports and Connectors 380
Wireless Connections 380

Plug-In Summary 382

Making Business Decisions 382

PLUG-IN T2

NETWORKS AND TELECOMMUNICATIONS 384

Introduction 384
The Need for Networking 385
The Benefits of Computer Networking 385
Networking Basics 385

Local Area Network (LAN) Basics 386 Wide Area Network (WAN) Basics 387 Metropolitan Area Network (MAN) Basics 387

Networks—The Big Picture 387 Physical Topologies 387

Network Access Methods (Protocols) 388

Token Ring 389 Ethernet 389

Fiber Distributed Data Interface (FDDI) 390

Networking Hardware 391 Guided Media 391

Twisted-Pair Wiring 391 Coaxial Cable 392 Fiber Optic Cable 392

Unguided Media 393

Transmitting and Receiving Devices 393

Network Adapters 393
Modems 394
Repeaters 394
Concentrators, Hubs, and Switches 394
Bridges, Routers, and Gateways 394
Microwave Transmitters 395
Infrared and Laser Transmitters 395
Cellular Transmitters 395
Wireless LAN Transmitters 396

The Network Operating System 396
Client-Server Networks 396
Thin Client-Server Networks 397
Peer-to-Peer Networks 398
Internet Technology 398

Transmission Control Protocol/Internet Protocol (TCP/IP) 399

World Wide Web (WWW) 399

Intranet 400
Extranet 400
Virtual Private Network (VPN) 400
Plug-In Summary 402
Making Business Decisions 402

PLUG-IN T3

DECISION-ANALYSIS TOOLS IN EXCEL 404

Introduction 404
PivotTables 405
PivotTable Terminology 405
Building a PivotTable 405
Using the PivotTable Feature 406
Modifying a PivotTable View 407
PivotTable Tools 408
Building a PivotChart 409
Goal Seek 409
Using the Goal Seek Command 41

Using the Goal Seek Command 410 Solver 411

Installing Solver 411
Setting Up the Problem 411
Editing a Solver Forecast 414
Scenario Manager 415
Setting Up Scenarios 415
Compare the Scenarios 418
Modifying a Scenario 418

Creating a Scenario Summary Report 418

Plug-In Summary 419

Making Business Decisions 419

PLUG-INT4

DESIGNING DATABASE APPLICATIONS 422

Introduction 422
Entities and Data Relationships 423
Entities and Their Attributes 423
Entity Identifiers 423

Single-Valued versus Multi-Valued Attributes 424
Documenting Logical Data Relationships 425
Basic Data Relationships 426

One-to-One Relationship 427
One-to-Many Relationship 428
Many-to-Many Relationship 428

Relationship Connectivity and Cardinality 429

Documenting Relationships—The Chen Method 429

Dealing with Many-to-Many Relationships 430
Composite Entities 430

omposite zittines

Schemas 431 The Relational Data Model 432 **Understanding Relations** 432

Columns and Column Characteristics Rows and Row Characteristics 432 Primary Key 433

Representing Data Relationships 433

Foreign Keys and Primary Keys in the Same Table 434

Referential Integrity 435 The Data Dictionary 435

Relationships and Business Rules 435

Normalization 437 Normal Forms 437

> First Normal Form (1NF) 438 Second Normal Form (2NF) 438 Third Normal Form (3NF) 439

Normalized Relations and Database Performance 439

Plug-In Summary 440

Making Business Decisions 440

PLUG-IN T5

TOURING ACCESS 444

Introduction 444 Creating an Access Database 444 Try IT—Creating a New Database 445 Saving a Database in Access 445 Using the Database Window and Object Views 445 Designing a Database 447

Create a Table 447 Adding a Field 447 Setting the Field Properties 447 Setting the Data Type 448 Field Size Property 448 Format Property 448 Decimal Places Property 449 Input Mask Property 449 Caption Property 449 Default Value Property 449

Validation Rule 449 Validation Text 450 Required Property 450 Indexed Property 450 Smart Tags 450

Designating a Primary Key 450 Try IT—Build Tables 450 Setting Up Table Relationships 452

Try IT—Create Relationships 453

Creating Forms and Data Access Pages 454 Try IT—Create a Form Using the Form Wizard Creating a Query 457

Creating a Basic Query with the Simple Query

Wizard 457

Try IT—Create a Query 457 Modifying a Query 458

Try IT-Modify a Query 460

Generating Reports 460

Try IT—Use the Report Wizard 461

Modifying a Report 462

Try IT—Modify a Report 463

Plug-In Summary 464

Making Business Decisions

PLUG-IN T6

OBJECT-ORIENTED TECHNOLOGIES

Introduction 466 Traditional Technology Approach 467 Information View Procedure View 467 The Problem with the Traditional Technology Approach 468

Object-Oriented Technology Approach 468 Information and Procedure Views Combined Object-Oriented Approach and the Real World 469

Five Primary Concepts of Object-Oriented

Technologies 469 Information 469 Procedures 469 Classes 469

Multiple Classes 470

Objects 470

Messages: How Classes and Objects Interact 471 How the Five Primary Concepts Interact 471 Real-World Object-Oriented Example 472 Three Fundamental Principles of Object-Oriented Technologies 472

Inheritance 473

Primary Business Benefit of Inheritance: Reuse 474

Encapsulation 474

Primary Business Benefit of Encapsulation:

Quality 475

Polymorphism 475

Primary Business Benefit of Polymorphism: Productivity 476

An Object-Oriented Business Example 476 18 Months to Get a New Product to Market 476 One Hour to Launch a New Product 477 **Inventory Control** 477 Scalability and Expandability 478 Types of Object-Oriented Technologies 479

Object-Oriented Programming Languages **Object-Oriented Database Systems**

Object-Oriented Technologies and Client/Server Environments 480

Plug-In Summary 483

Making Business Decisions 483

PLUG-IN T7

VALUING TECHNOLOGY 486

Introduction 486

Metrics—Measuring IT Value 486

Business Metrics in IT 487

Financial Metrics 487

Capital Budgeting 488

Project Classifications 488

The Five Common Financial Metrics 488

Net Present Value (NPV) 488

Decision Rule-NPV 489

Internal Rate of Return (IRR) 489

Decision Rule-IRR 490

Return on Investment (ROI) 490

Decision Rule—ROI 490

Payback Period (PB) 491

Decision Rule-PB 491

Total Cost of Ownership (TCO) 491

Decision Rule—TCO 491

Assessing the Value of IT 492

Customer Metrics 492

Web Traffic Analysis 493

Behavioral Metrics 493

Comparative Metrics 495

IT Spending by Activity and Resource 495

IT Spending as a Percentage of Revenue 495

IT Budget Allocated per Employee 496

The Value of the Help Desk 496

Plug-In Summary 497

Making Business Decisions 497



Project 1: The Importance of Information

Technology 500

Project 2: Strategic and Competitive Advantage 501

Project 3: Assessing the Value of Information 501

Project 4: Network Security 503

Project 5: Qualitative Analysis 503

Project 6: Small Business Analysis 504

Project 7: Mining Information 504

Project 8: Data Warehouse and CRM Challenge 50:

Project 9: Analyzing a Supply Chain 506

Project 10: Outsourcing Information Technology 507

Project 11: E-Business 508

Project 12: Emerging Trends and Technology 509

Project 13: Open Source on a Large Scale 509

Project 14: Aligning IT with Business Goals 510

Project 15: Transforming Campaign Finance 511

Project 16: Relational Data Structure 512

Project 17: Building a Relational Database 514

Project 18: Buy or Lease 515

Project 19: Gathering Business Requirements 516

Project 20: Project Management 517



GLOSSARY 518

NOTES 530